ABC of psychological medicine
Chest pain

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Chest pain is one of the commonest reasons for consultation in primary care. Chest pain is usually mild and transient, but further management is required in some cases. These are of two main types—acute severe pain and persistent pain associated with distress and functional limitation. Acute central chest pain accounts for 20-30% of emergency medical admissions. Chronic chest pain is the commonest reason for referral to cardiac outpatient clinics.

Management of chest pain

The improved diagnosis and early treatment of ischaemic heart disease have not been accompanied by similar advances either in the delivery of long term rehabilitation of patients with ischaemic heart disease or in the management of non-cardiac causes of chest pain. Since at least half of those referred to cardiac outpatient clinics and about two thirds of emergency admissions have a non-cardiac cause for their chest pain, there is a pressing need to address this problem.

Primary care

Primary care doctors have a major responsibility for the continuing care of patients with angina and those with chronic non-cardiac chest pain, as well as secondary prevention. They therefore need good communication with specialist cardiac services and access to appropriate resources, including psychological treatments.

Patients with a low risk of coronary disease (such as young women with no cardiac risk factors and atypical pain) do not usually need cardiac investigation. Some, however, especially those with chest pain who have a family history of heart disease or other risk factors, may need investigation. In such cases it is important that the possibility of a non-cardiac cause of the chest pain is explained before referral. If investigation reveals no cardiac cause for the pain patients need their worries to be fully discussed, need advice about coping with symptoms, and should be encouraged to maintain activity.

Patients with an intermediate or high risk (such as middle aged male smokers) often require investigations even if the chest pain is "not typical" of ischaemic pain. This will usually be achieved by referral to a cardiology outpatient clinic or to an emergency assessment service. When referring patients in whom the cause of chest pain is uncertain it is important to avoid giving them the impression that the diagnosis of ischaemic heart disease is already established (such as by prescribing anti-anginal drugs). This is because, if patients come to believe that they have ischaemic heart disease, such beliefs can be difficult to change even if they are subsequently disproved by investigation.

Secondary care

The best way to organise emergency care remains uncertain. A long wait for specialist investigations such as angiography is likely to increase anxiety and disability, as has been shown in patients waiting for coronary artery surgery. Quicker access to assessment (such as by rapid access clinics and observation units) can be helpful but needs to be accompanied by a greater emphasis on aftercare for all patients assessed, not only those who have had infarction or are undergoing cardiac surgery.

British soldier admitted for observation with the diagnosis of "disordered action of the heart"—a post-combat syndrome in the first world war characterised by rapid heartbeat, shortness of breath, fatigue, and dizziness. (From Lewis T. The tolerance of physical exertion, as shown by soldiers suffering from so-called 'irritable heart.' *BMJ* 1918;i:363-5)

Assessment and management of chest pain in primary care

- History of pain, other symptoms and risk factors
- If at high risk of heart disease, refer for specialist assessment
- If at low risk:
  Identify non-cardiac causes
  Give a positive explanation
  Advise how to cope with symptoms and return to normal activity
  Discuss worries
  Offer review if symptoms are persistent

Clinical priorities in managing patients with chest pain

Primary care
- Recognise and refer possible heart disease
- Reassure minor chest pain
- Basic treatment of persistent non-cardiac pain
- Reassess chronic pain as required, monitor and coordinate continuing care
- Advise on secondary prevention need

Hospital emergency care
- Immediate diagnosis and treatment plus initiating continuing care of angina
- Make a positive diagnosis; reassure if non-cardiac and arrange follow up to determine investigation and treatment needs
- Full and rapid communication with primary care

Cardiac outpatient care
- Initiate immediate and continuing care of angina
- Reassure and advise if non-cardiac; plan treatment or review

Other specialist care
- Cardiac rehabilitation or aftercare
- Psychological or psychiatric referral

Types of chest pain

Angina

The national service framework for coronary heart disease recognises that patients' beliefs, attitudes, emotions, and behaviour are powerful determinants of clinical outcomes and suggests not only routine psychosocial assessment but also the integration of psychological approaches into cardiac rehabilitation programmes. Self help behavioural treatment programmes have also been shown to be of benefit. The general principles of treatment described below for non-cardiac chest pain are also applicable to angina.

Myocardial infarction and depression

About one in six patients who have a myocardial infarction develop major depression. The occurrence of depression has been found to be independently associated with poor outcome, including poor quality of life, increased heart disease, and probably increased mortality. There is some evidence that those who have the severest heart disease are at greatest risk of an adverse outcome attributable to depression. It is in just these patients that depression is most likely to be missed because both doctor and patient understandably focus their attention on the heart disease and its treatment, rather than on psychological factors.

Myocardial infarction, angina, and non-cardiac chest pain

Patients who have had a myocardial infarction or who have proved angina often report other chest pains that are clearly non-cardiac. Inevitably, they tend to misinterpret these symptoms as evidence of heart disease. The consequence is often greater disability and distress and a high and inappropriate use of medical care.

Non-cardiac chest pain

Fewer than half of the patients referred to emergency departments and cardiac outpatient clinics have heart disease. Over two thirds of these continue to be disabled by symptoms in the long term, and many also remain dissatisfied with their medical care. Some continue to take cardiac drugs and to attend emergency departments, primary care, and outpatient clinics. Hence, although these patients have a good outcome in terms of mortality, they suffer considerable morbidity.

It is desirable to make an early and confident diagnosis of non-cardiac chest pain because appropriate management of this condition in primary care can reduce subsequent morbidity.

Causes of non-cardiac chest pain

Explanations in terms of a single cause are rarely helpful. Instead, the cause is often best understood as an interaction of biological, psychological, and social factors. In many cases there is an interaction between normal or abnormal physiological processes (such as extrasystoles, oesophageal spasm or reflux, and costochondral discomfort), psychological factors (such as how somatic sensations are perceived, interpreted, and acted on), and the behaviour and reactions of other people, including doctors.

Establishing a positive diagnosis of non-cardiac chest pain

The key to establishing a positive diagnosis of non-cardiac chest pain, both in primary care and cardiac clinics, is, first, to consider the pattern of chest pain symptoms and, second, to seek evidence for non-cardiac causes.

Main components of cardiac rehabilitation treatment programme for patients with myocardial infarctions

- Provide education about heart attacks and secondary prevention and correct misconceptions
- Agree and record goals for exercise, return to work, and everyday activities; provide copies for patients, medical notes, and primary care
- Offer home exercise programme or community group exercise, or both
- Routine early review of symptoms, activity, and progress with rehabilitation and secondary prevention goals
- Menu of specific interventions, including stopping smoking, diet, and identification and treatment of psychological and behavioural difficulties

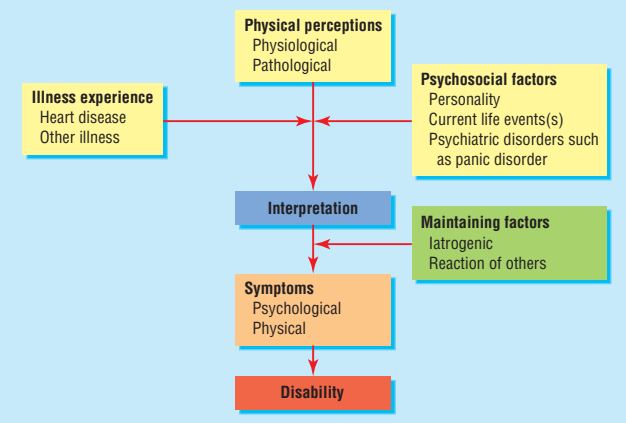
Non-cardiac pain in patients with diagnosis of angina

Diagnostic uncertainty may result in

- Non-cardiac pain being wrongly attributed to angina
- Increased antianginal medication
- Increased iatrogenic distress and disability
- Unnecessary investigations
- Unnecessary admissions and consultations

Common causes of non-cardiac chest pain

- Oesophageal disorders—Gastro-oesophageal reflux, oesophageal dysmotility
- Musculoskeletal—Costochondritis, increased muscular tension
- Referred pain from thoracic spine
- Hyperventilation
- Psychological—Panic attacks, depression



Interaction of biological, psychological, and social factors to cause non-cardiac chest pain and subsequent disability

Iatrogenic factors maintaining symptoms and disabilities

- Giving probable diagnosis of angina before investigation
- Immediate prescription of antianginal drugs without explanation of possible causes before investigation
- Lack of explanation for distressing and continuing symptoms
- Inconsistent or ambiguous information
- Reassurance contradicted by continued antianginal drugs or other indications of uncertainty
- Lack of communication with all involved in care leading to contradictory and conflicting advice

Quality of chest pain
Attempts to identify certain characteristics of chest pain that can help to establish a positive diagnosis of non-cardiac chest pain have been encouraging. For example, as few as three questions can differentiate patients with chest pain but normal coronary arteries from those with coronary heart disease.

Evidence for common non-cardiac causes
Oesophageal disorders are often associated with chest pain, but chest pain is poor correlated with objective oesophageal abnormalities. Symptomatic treatment (such as proton pump inhibitors) can be useful. Psychological issues may need addressing whether or not there is oesophageal pathology. Gastro-oesophageal reflux is an important cause of atypical chest pain, but there is no convincing evidence that such chest pain is often related to disturbances of oesophageal motility.

Emotional disorders—Only a minority of patients who present to family doctors with non-cardiac chest pain are suffering from conspicuous anxiety or depressive disorders. The rate of such disorders is, however, higher among those referred for specialist assessment in cardiac clinics, especially those who undergo angiography and are shown to have normal coronary arteries. It is important to seek evidence of (*a*) the key symptoms of depression (which include hopelessness; lack of interest, pleasure, and concentration; poor sleep; and irritability as well as low mood) and (*b*) an association of the chest pain with anxiety and panic attacks.

Patients' beliefs and worries
Even if no definite psychiatric diagnosis can be made, it is essential to ask patients what goes through their mind when they experience chest pain.

Stressful life events
Distressing life events can precipitate not only anxiety and depressive disorders, but also functional symptoms such as chest pain. Events signifying loss, threat, and rejection are of particular importance. Open questions are most effective in eliciting these—such as: "Tell me about any changes or setbacks that occurred in the months before your chest pain began."

Treatment of non-cardiac pain

Early and effective intervention is crucial, but how can this best be provided? Because patients vary not only in the frequency and severity of symptoms and associated disability but also in their needs for explanation and treatment of their physical and psychological problems, management needs to be flexible.

Avoiding iatrogenic worries—A consultation for chest pain is inherently worrying. Inevitably, many patients assume that they have severe heart disease, which will have major adverse effects on their life. These concerns may be greatly increased by delays in investigation, by comments or behaviours by doctors, and by contradictory and inconsistent comments.

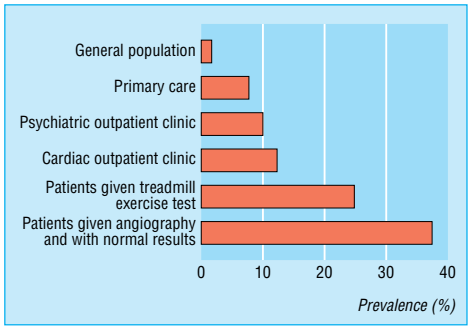
Symptomatic treatment—In some patients the pain is obviously musculoskeletal in origin and can be treated with non-steroidal anti-inflammatory drugs. Proton pump inhibitors provide effective relief from the symptoms typical of gastro-oesophageal reflux, even in those with an essentially normal oesophageal mucosa. In some cases oesophageal function testing may reveal a motility disorder or acid reflux unresponsive to first line drugs. These patients may require specialist gastroenterological referral.

Communication—Problems in the care of patients with chest pain often arise from failures in communication between primary and secondary care. Lack of information and contradictory or inconsistent advice makes it less likely that patients and their

Questions to differentiate patients with non-cardiac chest pain from those with coronary heart disease

Question	Response: Typical	Response: Atypical
If you go up a hill (or other stressor) on 10 separate occasions on how many do you get the pain?	10/10	<10/10
Of 10 pains in a row, how many occur at rest?	<2/10	≥2/10
How many minutes does the pain usually last?	<5	≥5

When answers to all three questions are "atypical" the chance of coronary disease is only 2% in patients aged <55 years and 12% in those aged ≥55



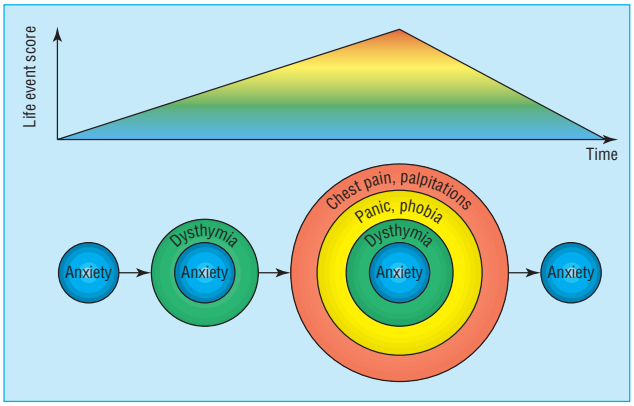
Prevalence of panic disorder in different medical settings

Screening questions for panic attacks

- In the past six months have you ever had a spell or an attack when you suddenly felt frightened, anxious, or very uneasy?
- In the past six months have you ever had a spell or an attack when for no reason your heart suddenly began to race, you felt faint, or you couldn't catch your breath?

If the answer is yes to either question then continue

- Obtain description
- Did any of these spells happen when you were not in danger or the centre of attention, such as in a crowd or when travelling?
- How many times have you had these spells in the past month?



Life events and symptom reporting. Stress of adverse life events may result in increases in reporting of psychological and physical symptoms

Management of non-cardiac chest pain

General management

- Explanation of the diagnosis
- Reassurance that it is a real, common, and well recognised problem
- Advice on specific treatments
- Advice on behaviour—such as not avoiding exercise
- Discussion of concerns
- Provision of written information
- Involvement of relatives
- Follow up to review

Specialist treatments

- Cognitive behaviour therapy
- Antidepressant drugs
- Psychosocial intervention for associated psychological, family, and social difficulties

families will gain a clear understanding of the diagnosis and of treatment plans. The increasing use of computerised exchange of key information may reduce this problem, although it remains important to ensure that the information is passed on to and understood by patients and relatives.

Effective reassurance—Those with mild or brief symptoms may improve after negative investigation and simple reassurance. Further hospital attendance may then be unnecessary. Others with more severe symptoms and illness concerns will benefit from a follow up visit four to six weeks after the cardiac clinic visit (or emergency room visit), which allows time for more discussion and explanation. This may be with either a cardiac nurse in the cardiac clinic or a doctor in primary care. It also provides a valuable opportunity to identify patients with recurrent or persistent symptoms who may require further help.

Specialist treatments—Psychological and psychopharmacological treatment should be considered for patients with continuing symptoms and disability, especially if these are associated with abnormal health beliefs, depressed mood, panic attacks, or other symptoms such as fatigue or palpitations. Both cognitive behaviour therapy and selective serotonin reuptake inhibitors have been shown to be effective. Tricyclic antidepressants are helpful in reducing reports of pain in patients with chest pain and normal coronary arteries, especially if there are accompanying depressive symptoms.

Organising care

Because of the heterogeneity of the needs of patients who present with chest pain, we propose a "stepped" approach to management. A cardiologist working in a busy outpatient clinic may require access to additional resources if he or she is to provide adequate management for large numbers of patients with angina or non-cardiac chest pain. One way of doing this is to employ a specialist cardiac nurse who has received additional training in the management of these problems. The nurse can provide patient education, simple psychological intervention, and routine follow up in a separate part of the cardiac outpatient clinic. For those patients who require more specialist psychological care, it is important for the cardiac department (possibly the cardiac nurse) to collaborate with the local psychology or liaison psychiatry service.

Conclusion

The management of coronary heart disease has received much attention in recent years, whereas non-cardiac chest pain has been relatively neglected. The structuring of cardiac care for both angina and non-cardiac chest pain to incorporate a greater focus on psychological aspects of medical management would be likely to produce considerable health gains.

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The ABC of psychological medicine is edited by Richard Mayou; Michael Sharpe, reader in psychological medicine, University of Edinburgh; and Alan Carson, consultant neuropsychiatrist, NHS Lothian, and honorary senior lecturer, University of Edinburgh. The series will be published as a book in winter 2002.

The picture of a soldier with "disordered action of the heart" is reproduced with permission of Wellcome Trust. The box of questions to identify patients with non-cardiac chest pain is adapted from Cooke R et al, *Heart* 1997;78:142-6. The figure showing link between life events and range of psychological and physical complications is adapted from Tyrer P, *Lancet* 1985;i:685-8. The figure of stepped care for managing non-cardiac chest pain is adapted from Chambers J et al, *Heart* 2000;84:101-5.

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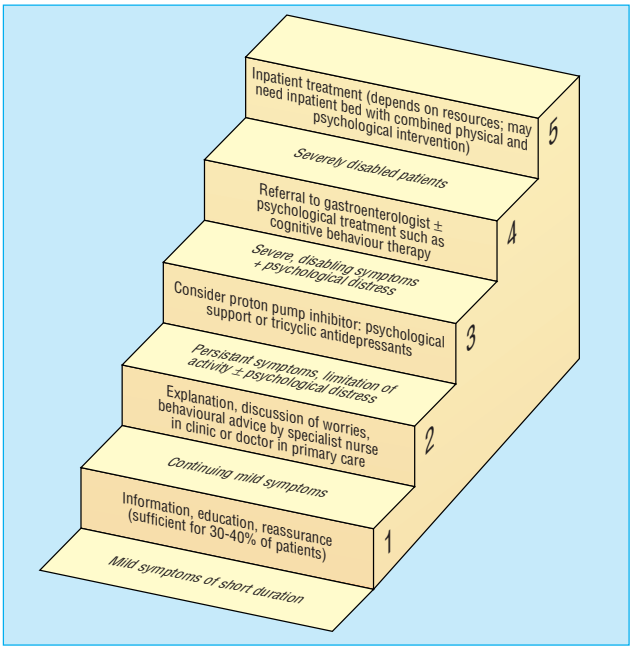
Effective reassurance

- Accept reality of symptoms
- Give explanation of causes
- Explain that symptoms are common, well recognised, and have a good prognosis
- Understand patient's and family's beliefs and worries
- Plan and agree simple self help
- Provide written information and plans
- Offer to see patient's partner or other close relative
- Offer follow up if required



"Stepped" care in the management of non-cardiac chest pain

Evidence based summary

- Half of patients referred from general practice to a cardiac clinic with chest pain or palpitations do not have cardiac disease, but, despite the absence of disease, their symptoms tend to persist
- Psychological treatment and antidepressant drugs can be effective in treating non-cardiac chest pain

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Suggested reading

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